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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/705,966 | 11/13/2003 | Koji Suzuki | 245424US2SRD | 6728 |

22850 7590 06/28/2006

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| EXAMINER |
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SHAPIRO, LEONID

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| ART UNIT | PAPER NUMBER |
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2629

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,966

Applicant(s)

SUZUKI ET AL.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-18 and 22 is/are rejected.
- 7) ☒ Claim(s) 8-10 and 19-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 1-5,11-16,22 are rejected under 35 U.S.C. 102(b) as being anticipated by Akihiko (JP 2000-098968).

As to claim 1, Akihiko teaches a method of driving a display apparatus (See paragraph 0001), the display apparatus including:

a first substrate having a first surface (See Fig. 1, item 20, paragraph 0024);
electron emitting elements, each configured to emit an electron beam, which are arranged on the first surface of the first substrate in a matrix form (See Fig. 1, items 21-22, paragraph 0024);

a second substrate having a second surface which faces the first surface with a gap therebetween (See Fig. 1, item 24, paragraph 0024);

an anode electrode formed at the second surface (See Fig. 1, item Va, paragraph 0024), and

a phosphor layer formed on the anode electrode, and configured to emit light rays in response of irradiation of the electron beam (See Fig. 1, item 24, paragraph 0024);

said display method comprising:

selecting first combination first anode voltage and a first element voltage (See 8A, item 81);

applying the first anode voltage to the anode electrode during a first period and applying element voltage to the electron emitting elements selectively (V_a/V_f is large) (See Fig. 8A, item 81, paragraph 0052) during the first period (every frame) (See paragraph 0054);

changing the first combination to a second combination of second anode voltage and a second element voltage (every frame) (See paragraph 0054);

applying the second anode voltage to the anode electrode during a second period and applying the second element voltage the electron emitting elements selectively (V_a/V_f is small) (See Fig. 8B, item 82, paragraph 0052) during the second period (every frame) (See paragraph 0054); and

changing the second combination to the first combination after the second period (See paragraph 0054).

As to claim 12, Akihiko teaches a system for driving a display apparatus (See paragraph 0001), the display apparatus including:

a first substrate having a first surface (See Fig. 1, item 20, paragraph 0024);

electron emitting elements, each configured to emit an electron beam, which are arranged on the first surface of the first substrate in a matrix form (See Fig. 1, items 21-22, paragraph 0024);

a second substrate having a second surface which faces the first surface with a gap therebetween (See Fig. 1, item 24, paragraph 0024);

an anode electrode formed at the second surface (See Fig. 1, item Va, paragraph 0024), and

a phosphor layer formed on the anode electrode, and configured to emit light rays in response of irradiation of the electron beam (See Fig. 1, item 24, paragraph 0024);

a selecting portion configured to select a first combination of a first anode voltage and a first element voltage to apply the first anode voltage to the anode electrode during a first period and applying element voltage to the electron emitting elements selectively (V_a/V_f is large) (See Fig. 8A, item 81, paragraph 0052) during the first period (every frame) (See paragraph 0054);

a changing portion configured to change the first combination to a second combination of second anode voltage and a second element voltage (every frame) (See paragraph 0054) after the first period to apply the second anode voltage to the anode electrode during a second period and applying the second element voltage the electron emitting elements selectively (V_a/V_f is small) (See Fig. 8B, item 82, paragraph 0052) during the second period (every frame) (See paragraph 0054); and change the second combination to the first combination after the second period (See paragraph 0054).

As to claims 2,13, Akihiko teaches the electron emitting elements includes a element film and first and second electrodes opposing each other and disposed on the element film (See Fig. 1, items 20-23, paragraphs 24-25).

As to claims 3,14, Akihiko teaches a plurality of scanning lines arranged parallel to each other on the first surface of the first substrate; a plurality of modulation lines

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which intersect the scanning lines so as to be electrically insulated therefrom and are arranged parallel to each other, the electron emitting elements being provided at intersections of the scanning lines and the modulation lines, and the first and second electrodes being respectively connected to the scanning line and the modulation line (See Fig. 6, items Dx1,..., Dxm, Dy1,..., Dyn, paragraph 0041).

As to claims 4,15, Akihiko teaches a signal generator configured to generate a first scanning and modulating signal including the first element voltage, supply the first scanning and modulating signal to the scanning and modulation lines respectively, during a first period, generate a second scanning and modulating signal including the second element voltage and apply the second scanning and modulating signal to the scanning and modulation lines respectively, during a second period (See Figs. 6-7, items 107, 110, paragraphs 0046-0048,0054).

As to claims 5,16 Akihiko teaches inputting a display signal to generate the scanning and modulation signal, wherein the first and second combinations are so set as to provide a substantially same luminance display condition with respect to the same display signal (See Fig. 7, item Va/Vf, paragraphs 0049).

As to claims 11,22 Akihiko teaches first and second combinations cause the electron beams to be landed on first and second positions on the phosphor layer, respectively (See Figs. 8A-8B, items 81-82, paragraph 0052).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6-7, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akihiko in view of Santelmann (US Patent No. 5,394,067).

Akihiko does not disclose to switching two different power supplies.

Santelmann teaches the use of two power supplies for the regulating circuit (See Col. 2, Lines 32-33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Santelmann into Akihiko system in order to simplify the control circuit.

Allowable Subject Matter

3. Claims 8-10, 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 8, 19 the major difference between the teaching of the prior art of record (Akihiko) and the instant invention is that first and second periods are determined based on the first and second combinations respectively and are

inverse proportional to an anode current flowing through the anode.

Relative to claims 9, 20 the major difference between the teaching of the prior art of record (Akihiko) and the instant invention is that changing portion gradually changes the first anode voltage to the second anode voltage and the first element voltage to the second voltage, and gradually changes the second anode voltage to the first anode voltage, and the second element voltage to the first voltage.

Relative to claims 10, 21 the major difference between the teaching of the prior art of record (Akihiko) and the instant invention is that changing the first combination includes applying an intermediate anode voltage between the first and second anode voltages to the anode and applying an intermediate element voltage between the first voltages to the electron emitting element during an third period after the first period and and changing the second combination includes applying the intermediate anode voltage between the first and second anode voltages to the anode and applying the intermediate element voltage between the first and second element voltages to the electron emitting element during the fourth period after the second period.

Telephone Inquire


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
06.23.06



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